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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/516,812	03/01/2000	J. Steve Anderson	PD-970480	2845

7590 11/20/2003

Patent Docket Administration
Raytheon Company
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El Segundo, CA 90245

EXAMINER

PARKER, KENNETH

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/516,812

Applicant(s)

ANDERSON ET AL.

Examiner

Kenneth A Parker

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AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 and 12 is/are allowed.
- 6) ☒ Claim(s) 1-6, 10, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 13-14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lipchak et al 5253033

Lipchak et al discloses a LC phased array scanner which is not indicated as diffractive and shows the wavefront at 90 degrees to the phases, in which liquid crystal cells having electrodes are employed (therefore having the same first and second means), which controlled by a driver, drivers being equivalent means to a computer (figure 17). They are equivalent because they perform the same task providing a voltage, in substantially the same way (through electronic circuits). Further, the exchangeability of a dedicated circuit with a flexible computer was established. Third, a controller which established voltage for each of the electrodes may be considered a computer in itself. Therefore, these claims are anticipated by Grinberg et al.

The references show a system for steering a beam of electromagnetic energy comprising:

first means for receiving an input wavefront of electromagnetic energy (element 50- the optical portion) along a

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first axis, said first means including means for refracting said input wavefront as an output wavefront along a second axis at an angle with respect to said first axis in response to an applied voltage;

second means for providing said voltage (the electrodes of 50- shown in figure 1) in response to a control signal; and

third means for providing said control signal (element 52).

Where the index of refraction of said first means varies in response to said applied voltage., and in which the first means is a liquid crystal device which includes an array of liquid crystal devices.

It performs a method for steering a beam of electromagnetic energy comprising the steps of:
providing a control signal (performed by 52),
providing a voltage in response to said control signal (the electrodes of 50), and
receiving an input wavefront of electromagnetic energy along a first axis and
refracting said input wavefront as an output wavefront along a second axis at an angle (performed by 50)
with respect to said first axis in response to said voltage.

And a method for steering multiple beams of electromagnetic energy comprising the steps of:
providing control signals (52)
providing a plurality of voltages in response to said control signals (one for each electrode of 50), and receiving multiple input wavefronts of electromagnetic energy along a first axis and refracting each said input wavefronts as an output

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wavefront along a second axis at angles with respect to said first axis in response to said voltage (each portion of the cell 50 gets its own portion of light)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lipchak et al 5253

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Claim 10 is written to the device of claim 1 wherein said third means is a microprocessor. Computers were well known for employing for providing driving voltages for flexibility and ease of setting up (a computer plus D-A requires no custom parts or circuits). Therefore it would have been obvious to one of ordinary skill to employ a computer as was well known to use for providing a voltage for the benefit of requiring no custom parts and flexibility.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lipchak et al 5253033 as applied above, and further in view of Inoue US4971413, Kramer US4973112 and Budd et al US4963900.

Lacking is dispersion correction and such using prisms. Dispersion correction was well known for enabling multiwavelength use for the benefit of providing more information. The three secondary references show prisms for correcting for chromatic dispersion in gratings and other alignment effects. Therefore it would have been obvious to one of ordinary skill to employ prisms for dispersion correction was well known for enabling multiwavelength use for the benefit of providing more information.

Allowable Subject Matter

Claims 11-12 are allowed.

Claims 7-9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Several equivalent types of refractive beam steering have been cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A Parker whose telephone number is 703-305-6202. The examiner can normally be reached on 9:30-6:00.

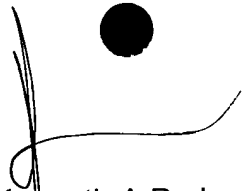
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L. Sikes can be reached on 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

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Kenneth A Parker
Primary Examiner
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November 17, 2003